

**THAT WHICH IS CLAIMED IS:**

1. A mobile data collection system comprising:  
a positioning system to generate position and time  
data;

a down-looking line scan camera for mounting on a  
vehicle to obtain a series of line scan images; and

a data collection controller connected to the  
positioning system and the line scan camera to associate line  
scan images with corresponding position and time data.

2. The mobile data collection system according to  
Claim 1 further comprising a database to store the line scan  
images and associated corresponding position and time data.

3. The mobile data collection system according to  
Claim 1 wherein the positioning system comprises a Global  
Positioning System (GPS) receiver.

4. The mobile data collection system according to  
Claim 3 wherein the positioning system further comprises an  
Inertial Navigation System (INS).

5. The mobile data collection system according to  
Claim 1 wherein the line scan camera comprises a digital line  
scan camera and an attached wide-angle lens.

6. The mobile data collection system according to  
Claim 1 wherein the line scan camera comprises an attached fish-  
eye lens.

7. The mobile data collection system according to Claim 1 wherein the data collection controller comprises a central processing unit and a frame grabber.

8. The mobile data collection system according to Claim 1 further comprising a display device connected to the data collection controller to display the line scan images.

9. The mobile data collection system according to Claim 1 wherein the data collection controller comprises an image processor to identify and mark road features in the line scan images.

10. The mobile data collection system according to Claim 10 wherein the image processor identifies road features comprising at least one of road edges, lane markings and centerline.

11. A mobile road-centerline data collection and processing system comprising:

- a vehicle for traveling along a road;

- a positioning system carried by the vehicle to generate position and time data;

- a down-looking line scan camera with an attached wide-angle lens mounted on the vehicle to obtain a series of line scan images of the road; and

- a data collection controller, carried by the vehicle and connected to the positioning system and the line scan camera to associate line scan images with corresponding position and time data, the data collection controller comprising an image processor to identify and mark road features in the line scan images.

12. The mobile data collection system according to Claim 11 further comprising a database to store the line scan images and associated corresponding position and time data.

13. The mobile data collection system according to Claim 11 wherein the positioning system comprises a Global Positioning System (GPS) receiver.

14. The mobile data collection system according to Claim 13 wherein the positioning system further comprises an Inertial Navigation System (INS).

15. The mobile data collection system according to Claim 11 wherein the line scan camera comprises a digital line scan camera and an attached wide-angle lens.

16. The mobile data collection system according to Claim 11 wherein the line scan camera further comprises an attached fish-eye lens.

17. The mobile data collection system according to Claim 11 wherein the data collection controller comprises a central processing unit and a frame grabber.

18. The mobile data collection system according to Claim 11 further comprising a display device connected to the data collection controller to display the line scan images.

19. A method for road-centerline data collection and processing comprising:

providing a positioning system in a vehicle to generate position and time data;

moving the vehicle along a road and operating a down-looking line scan camera to obtain a series of line scan images of the road; and

associating the line scan images with corresponding position and time data from the positioning system.

20. The method according to Claim 19 further comprising processing the line scan images to identify and mark road features.

21. The method according to Claim 19 further comprising storing the line scan images and associated corresponding position and time data in a database.

22. The method according to Claim 19 wherein the line scan camera comprises a digital line scan camera and an attached wide-angle lens.

23. The method according to Claim 22 wherein the wide-angle lens comprises a fish-eye lens.

24. The method according to Claim 19 wherein associating each line scan image with corresponding position and time data from the positioning system comprises providing a central processing unit and a frame grabber connected to the positioning system and the line scan camera.

25. The method according to Claim 19 further comprising connecting a display device to the line scan camera to display the line scan images.